

CLAIMS

SUB 137 1. A method of generating an XML document comprising:
preparing only a portion of an XML document;
sending said portion to a client; and
repeating said preparing and said sending until an entire XML document is
sent to a client.

2. The method of claim 1, wherein said preparing comprises:
gathering data that is to appear in the XML document;
calling an emitter object;
passing the emitter object gathered data; and
formatting the gathered data into an appropriate XML syntax with the
emitter object.

3. The method of claim 2, wherein said gathering comprises using a data
gathering object to gather said data.

4. The method of claim 1 further comprising prior to said preparing,
receiving a request for the XML document from the client.

5. A method of responding to an Extensible Markup Language (XML)
request comprising:
receiving an XML request from a client;
preparing only a portion of a response to the request; and
sending the response portion to the client.

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2 6. The method of claim 5 further comprising repeating said preparing
3 and said sending until an entire response has been sent to the client.
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5 7. The method of claim 5 further comprising repeating said preparing
6 and said sending until an entire response has been sent to the client, said preparing
7 of response portions taking place in a defined order.
8

9 8. The method of claim 5 further comprising repeating said preparing
10 and said sending until an entire response has been sent to the client, said preparing
11 of response portions taking place in a defined order, wherein the response
12 comprises an XML multistatus response.
13

14 9. The method of claim 5, wherein the response comprises an XML
15 multistatus response.
16

17 10. The method of claim 5, wherein said preparing comprises:
18 gathering data for said response portion with a data-gathering mechanism;
19 and
20 formatting gathered data into an appropriate XML syntax with a data-
21 formatting mechanism.
22

23 11. The method of claim 10, wherein said sending comprises sending
24 the response portion to the client with a response-sending mechanism.
25

1 **12.** The method of claim 11, wherein said response-sending mechanism
2 includes a buffer for holding at least one response portion that is prepared by the
3 data-formatting mechanism and further comprising:

4 defining a buffer threshold;
5 buffering said at least one response portion in the buffer; and
6 sending said at least one response portion to the client when the buffer
7 threshold is reached.

8
9 **13.** A computer-readable medium having a program which, when
10 executed by a computer, performs the method of claim 5.

11
12 **14.** A method of responding to an Extensible Markup Language (XML)
13 request comprising:

14 receiving an XML request from a client;
15 gathering data that is to appear in a response to the client's request;
16 calling an emitter object and passing the emitter object the gathered data;
17 formatting the gathered data into an appropriate XML syntax with the
18 emitter object; and
19 emitting formatted data from the emitter object.

20
21 **15.** The method of claim 14 further comprising:
22 accumulating the emitted formatted data in a buffer; and
23 sending buffered data to the client when the buffer contains a defined
24 amount of data that is less than an amount that would constitute a complete
25 response to the client's request.

16. The method of claim 14, wherein:

said calling comprises calling the emitter object multiple times; and
said emitting comprises emitting multiple amounts of formatted data.

17. The method of claim 14, wherein:

said calling comprises calling the emitter object multiple times and in a
defined order; and

said emitting comprises emitting multiple amounts of formatted data.

18. The method of claim 14, wherein said gathering comprises gathering
data that is to appear in a multistatus response.

19. A computer-readable medium having a program which, when
executed by a computer, performs the method of claim 14.

20. A method of responding to an Extensible Markup Language (XML)
request comprising:

receiving an XML request from a client, the XML request containing a
Web Distributed Authoring and Versioning (WebDAV) request method;

determining the WebDAV request method that is contained in the client's
request;

creating a request method object for the WebDAV request method;

gathering data that is to appear in a response to the client's request with the
request method object;

1 calling an emitter object and passing the emitter object data that was
2 gathered by the request method object; and

3 generating at least a portion of a syntactically correct XML response with
4 the emitter object using the data that was gathered by the request method object.

5
6 **21.** The method of claim 20 further comprising sending the response
7 portion to the client.

8
9 **22.** The method of claim 21, wherein the sending of the response
10 portion comprises doing so without building an entire hierarchical tree structure
11 that represents an entire response for the client's request.

12
13 **23.** The method of claim 20, wherein said calling comprises calling the
14 emitter object a plurality of times for a given response.

15
16 **24.** The method of claim 20, wherein said generating comprises
17 generating a plurality of syntactically correct XML response portions and sending
18 said response portions separately to the client.

19
20 **25.** The method of claim 20, wherein said calling comprises calling the
21 emitter object a plurality of times and in a defined order for a given response.

1 **26.** The method of claim 20, wherein:
2 said calling comprises calling the emitter object a plurality of times for a
3 given response; and

4 said generating comprises generating a plurality of syntactically correct
5 XML response portions and sending said response portions separately to the client.
6

7 **27.** The method of claim 20 further comprising:
8 buffering a plurality of response portions in a buffer; and
9 sending the plurality of response portions together to the client.
10

11 **28.** The method of claim 27, wherein said sending of the plurality of
12 response portions comprises sending less than an entirety of a response to the
13 client.
14

15 **29.** The method of claim 27 further comprising:
16 setting a threshold value on the buffer;
17 determining when the threshold value is satisfied by the response portions
18 that are buffered therein; and
19 responsive to the threshold value being satisfied, sending the buffered
20 response portions to the client.
21

22 **30.** A computer-readable medium having a program which, when
23 executed by a computer, performs the method of claim 20.
24
25

1 ~~31.~~ An Extensible Markup Language (XML) request processor
2 comprising:

3 an XML response generator comprising:

4 a request-receiving mechanism configured to receive an XML
5 request from a client;

6 a response-preparing mechanism coupled with the request-receiving
7 mechanism and configured to prepare only a portion of a response at a
8 time; and

9 a sending mechanism coupled with the response-preparing
10 mechanism and configured to receive response portions from the response-
11 preparing mechanism and to send the response portions to the client, the
12 sent response portions constituting less than an entirety of a response.

13
14 **32.** The XML request processor of claim 31, wherein the response-
15 preparing mechanism is configured to prepare response portions and the sending
16 mechanism is configured to send the response portions to the client until an entire
17 response is sent to the client.

18
19 **33.** The XML request processor of claim 31, wherein the response that
20 is sent to the client comprises a multistatus response.

21
22 **34.** The XML request processor of claim 31, wherein the response-
23 preparing mechanism is configured to prepare response portions in a defined
24 order.
25

1 **35.** The XML request processor of claim 31, wherein the response-
2 preparing mechanism includes a data-gathering function that gathers data that is to
3 appear in a client's response, and a formatting function that receives data that is
4 gathered by the data-gathering function and formats the data into an appropriate
5 XML syntax.

6
7 **36.** The XML request processor of claim 31, wherein the sending
8 mechanism includes a buffer for buffering response portions that are received
9 from the response-preparing mechanism, and wherein the buffer has a defined
10 threshold which, when satisfied, enables the sending mechanism to send buffered
11 response portions to the client.

12
13 **37.** An Extensible Markup Language (XML) request processor
14 comprising:

15 a data-gathering object for gathering data that is to appear in a client
16 response and generating calls in a predefined order that contain the gathered data;
17 and

18 an emitter object configured to receive calls that are generated by the data-
19 gathering object and format the data contained therein into an appropriate XML
20 syntax.

21
22 **38.** The XML request processor of claim 37, wherein the emitter object
23 is configured to emit only portions of a response that are piecewise sent to the
24 client.

1 39. The XML request processor of claim 38 further comprising a buffer
2 that is configured to receive response portions that are emitted from the emitter
3 object, buffered response portions being sent to the client when a defined buffer
4 threshold is satisfied.

5
6 40. The XML request processor of claim 37 further comprising a buffer
7 that is configured to receive response portions that are emitted from the emitter
8 object, buffered response portions being accumulated by the buffer and sent to the
9 client when a defined buffer threshold is satisfied, the buffered response portions
10 comprising less than a complete response.

11
12 41. A computer-readable medium having a computer program for
13 responding to an XML request, the program comprising the following steps:

14 receiving a client request;
15 determining an HTTP verb that is contained in the client request;
16 instantiating a request method object that corresponds to the HTTP verb
17 that is contained in the client request;
18 using the request method object to gather information that is to appear in a
19 response to the client's request;
20 making a series of calls to an emitter object that is configured to receive
21 information from the request method object and process the information into a
22 response portion having an appropriate XML syntactic format; and
23 sending the response portion to the client.

1 **42.** The program of claim 41, wherein the making of the series of calls
2 comprises doing so in a defined order.

3
4 **43.** The program of claim 41 further comprising accumulating response
5 portions, said sending comprising sending accumulated response portions to the
6 client, the accumulated response portions constituting less than an entirety of a
7 complete client response.

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9 **44.** A computer-readable medium having software code that is
10 configured to receive an XML request from a client and instantiate an object that
11 corresponds to an HTTP verb that is contained in the request, the software code
12 further using the object to build a portion of an XML response to the request.

13
14 **45.** The software code of claim 44, wherein individual objects that are
15 instantiable by the software code are unique to an HTTP verb with which it
16 corresponds.

17
18 **46.** The software code of claim 44, wherein the object is configured to
19 make calls to another object, the calls containing information that is to be included
20 in the XML response.

47. The software code of claim 44, wherein the object is configured to make calls to a second object, the calls containing information that is to be included in the XML response, the second object being configured to format the information into an appropriate syntactic form.

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